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ABSTRACT

In spite of decades of research and staff development attempts, few efforts at reforming education in our schools have been successful. This paper discusses the structure of the Triad Inservice Model, a partnership specifically designed to enable teachers to control the curriculum and their own instructional techniques, and to facilitate the process of school change. Qualitative data were collected using the model, and recommendations were noted from specific field testing with two groups of elementary school teachers. These teachers met throughout the school year for six sessions, with each session lasting 2 or 3 days. The strengths of the various components of the model (i.e., modeling, teacher research, conceptual change, peer coaching, interviewing techniques, and collegial sharing) are discussed in relation to the teachers' 2-year understanding and use. The Triad Model appeared successful in terms of enhancing teacher attitudes, feelings of confidence, and empowerment relationships. (Contains 33 references.) (ND)

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Beyond Conventional Teacher Inservice:
Establishing The Medium For School Change

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RUNNING HEAD: BEYOND CONVENTIONAL TEACHER INSERVICE

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Abstract

In spite of decades of research and staff development attempts, few efforts at reforming education in our schools have been successful. "Beyond Conventional Teacher Inservice: Establishing The Medium For School Change" will discuss the structure of the Triad Inservice Model, qualitative data collected from its use, and recommendations from specific field testing. The Triad Model appears successful in terms of enhancing teacher attitudes,feelings of confidence, and empowerment relationships. In addition, the strengths of the various components of the Triad (i.e. modeling, teacher research, conceptual change, and peer coaching) is discussed in relation to the teachers' two year understanding and use.

Beyond Conventional Teacher Inservice:

Establishing The Medium For School Change

Overview

As teachers progress in their careers, they need to be encouraged to remain aware of new findings in content, educational research, and effective teaching strategies. Therefore, staff development opportunities become a very important part of each teacher's continued education. Traditionally, though, many inservice model components, like peer coaching, teacher as researcher, effective, well-researched teaching models, cooperative learning, among others, are used singly to create change. Each of these components are individually appropriate professional enhancements for staff development training. Yet, how do these components blend together to enhance the capacity for meaningful teacher inservice in education? This paper describes how to integrate peer coaching, cooperative learning, teacher as researcher, and the use of an appropriate teaching strategies into a viable partnership and inservice model. In addition, the struggles of a group of elementary teachers as they begin to assess their teaching, curriculum, and the cultural practices of their school are examined.

Though a staff development model that consolidates these various well-established components can be used to empower teachers and change their attitudes, a well-grounded partnership can also help the teachers to begin to garner control over "what" they teach (content), and "how" they teach (pedagogy). Teachers need to share ideas and try new skills in an environment that is safe (much the same as we suggest for our students). Administrators, specifically the principal, can help to solve many of the teachers' significant problems if their role is one of a facilitator. Teacher Educators can also help to create new thinking, challenge existing ideas, and provide structure to enable change in today's schools. In essence, the formation of a partnership between the teachers, administrators, and teacher educators is extremely valuable. The Triad Inservice Model (Stepans, Miller, & Willis, 1992; Stepans & Miller, 1992 & Miller, 1993) is a partnership specifically designed to enable teachers to garner control over the curriculum, their instructional techniques, and facilitate the process of school cultural change. The study of the impact of the Triad Inservice Model (See Figure 1) on teachers' attitudes, reflective nature, sense of empowerment, confidence, and ability to teach content along with interdisciplinary strategies, specifically in the areas of education, can help the staff development facilitators plan a

successful program.

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Insert Figure 1 about here

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Procedures

Two groups of elementary teachers met throughout the school year for six sessions each session lasting between two and three days. Between sessions the teachers were asked to go back into their classrooms and try the specific strategies learned and be ready to report back about theirs successes or failures the following session. Focusing mainly on learning rather than teaching, each session targeted specific teacher needs. Many of these needs were emergent in nature. The sessions included staff development exercises in teacher research (Hewson & Hewson, 1990, Kyle & Shymansky, 1988 & Mohr, 1987) which helped the teachers to determine the extent of conceptual change (Posner, Strike, Hewson, & Gertzog, 1982; Nussbaum & Novick, 1982; Kyle & Shymanski, 1989) in their students. Teacher research prepared the teachers to begin to study the extent of their own students' learning regarding the science concepts studied in their own classrooms. The teachers experimented with the conceptual change teaching strategy, discussed classroom student interview results, and observed modeling of specific strategies by the facilitators in these inservice sessions. Another component of this model, Peer coaching (Joyce & Showers, 1980), used techniques that allowed teachers to critique each other's teaching episodes. Of more importance, several sharing and discussion sessions on an emergent design helped to determine future inservice session agendas. (For a complete description of the inservice sessions with agendas see Appendix 1)

The major portion of the study spanned a total of twenty-eight weeks. Qualitative data collected included ten 60-minute audio tapes of interviews and group sessions, three 120-minute videotapes of group sessions, twenty-three teacher journals and written group and individual responses from survey and essay questions.

Interpretation of the Results

The teachers in this study described their experiences as something that had created change in their teaching strategies and their lives as classroom teachers. They discussed together how they had become

more relaxed, motivated, confident, and enthusiastic toward their teaching strategies. The teachers felt that they had become more understanding of the learning that was taking place in their classrooms.

The Triad Model, requiring the application of the concepts presented throughout the inservice to be used and evaluated in the classroom, proved to be a significant structure of this model. In addition, the teachers began to share materials, information, ideas, and time with each other to develop an increase in collegial relationships and the enhancement of their teaching abilities.

Because the specific inservice content focused on individual grade level curriculum, the teachers had ownership in the Triad's emergent direction. The teachers had little problem identifying with the purpose of the project and its student-centered approach to instruction. They began to use many varied teaching strategies and demonstrate a deeper understanding of the teaching and learning process. They conceptualized the whole process of teaching with multiple strategies and multiple problems, rather than focus on one method or one strategy. Further interpretation of the results of this study follows regarding the components of the model.

The components of the Triad Inservice Model were peer coaching, the conceptual change model, teacher as researcher, interviewing techniques, constructivist modeling, and collegial sharing in the sessions. After using these components, the teachers were to evaluate and revise existing curriculum. Discussion of each component's contribution to the total Triad model follows in this section.

Peer coaching.

The teachers were initially apprehensive about the inclusion of peer coaching in this model. Most of the teachers had mixed feelings about peer coaching. They were excited to try peer coaching but seemed concerned about having another teacher observing in their classroom. They stressed the need to be positive and supportive of each other. In addition, it became necessary for them to develop a level of trust with one another. The teachers less affected by this apprehension seemed to be those with some previous experience in peer coaching, team teaching, or a strong working relationship with another colleague. However, after participating in this component of the inservice program, the teachers spoke highly of its strengths as a method of improving their own teaching.

Overcoming the logistical problems associated with peer coaching proved difficult. Even with the availability of substitutes, provided for and organized by the administrators, many of the teachers did not

want to leave their classroom to a substitute. Instead, after initially using substitutes in their classroom, the teachers used their own planning times or preparation periods to plan, observe, and debrief with their peer coaching cohort.

Conceptual Change Strategy.

The use of the conceptual change teaching strategy with children became an important staff development component. The teachers liked the idea of finding out where their students were in relation to their understanding on a concept. They commented that obtaining children's prior knowledge can provide opportunities encourage a deeper understanding of a concept. The use of a valid, thoroughly researched, teaching strategy in a staff development program was extremely valuable.

The conceptual change teaching strategy did not meet without some initial barriers. Sharing sessions were used to alleviate concerns and to help dispel beliefs that the sole use of the conceptual change model was an attack on any teacher's previous teaching strategy. The application of the conceptual change teaching strategy and its use in new and novel situations increased with the length of the inservice program. The teachers using the conceptual change strategy readily adapted the model to fit their needs in and other disciplines. In the beginning, however, some teachers commented that the conceptual change teaching strategy was overwhelming and threatening. They suggested more instructor modeling and group modeling within the class sessions to alleviate these concerns.

When the teachers had become more accustomed to the new strategy, they began to view conceptual change as a favorable teaching method. They seemed to need more time to use, analyze, justify, and reflect on its use in their classroom. The results of the teachers use of the conceptual change teaching strategy indicate an increase in the development of an understanding of the conceptual change teaching strategy for classroom implementation. Depth in the teachers' understanding might take longer than this particular model provided. To a large extent, the introduction of a new teaching paradigm requires a considerable amount of individual experimentation leading to a complete understanding. If the teachers design methods to study the effects of the new teaching strategy, this understanding is enhanced

Teacher as researcher.

The general feeling expressed toward the component of teacher as researcher was one of a welcome bit of empowerment. The teachers felt grateful for the chance of conducting classroom research that was

both relevant and of value, not only to them, but also to their students. The use of university generated research in education and its relevance to their classrooms appeared to be of little value to these teachers.

The teachers in the project began their research experiences by identifying the concept or topic they were planning to cover within the next several weeks. While discussing the importance of identifying students' perceptions, the teachers also prepared written summaries of the concept and what they wanted their students to learn as a result of their instruction. They developed a set of questions to interview students to find out their understanding regarding the concept.

The teacher as a researcher began collecting data on students' views of the concept. Emphasizing the value of interviewing as an effective way to determine what students know, think and value regarding a concept, helped to determine the value of follow-up questions and ways to expand their students' views. These sessions included methods to interpret data gathered and the information obtained about students' thinking.

Though few of the teachers felt the need to carry the concept of teacher as researcher beyond their classroom and in the direction of teacher journals and published articles, the teachers did place individual value on their experience with their own research. They had a tendency to believe that their classroom research could improve their own instruction. The teacher as researcher component empowered the classroom teachers and forced them to begin to examine their practices both individually and collectively. They began to see that they had choices in the instructional strategies and teaching methods. The inclusion of the teacher as researcher component enabled the teachers to be able to substantiate and defend these choices to other teachers and administrators.

Interviewing.

Interviewing children prior to instruction and after instruction by the teachers involved in this study was one of the principle means of gathering data in the teacher as researcher model. The teachers spoke highly of this experience and its implications for the improvement of their classroom instruction. The value of the interview, according to the teachers, was in its potential to gain an increased understanding into the students' prior knowledge regarding a concept. During the interviews, many of the teachers were surprised by the naive answers given by their students prior to instruction and went to great lengths to share that information with their colleagues during the inservice sessions.

As expected, the ability to synthesize, evaluate and analyze the data collected by the teachers in their classroom interviews initially lacked depth. The teachers struggled with defining the meaning of what constitutes true conceptual understanding. They were not entirely successful in evaluating the conceptual growth in their students. More time developing interview techniques, interview questions, and teacher knowledge in analyzing and interpreting the interview data was necessary.

The teachers believed that the process of interviewing their students was a powerful tool for assessing the depth of student knowledge. However, its continued use in the classroom is quite possibly contingent upon the amount of time provided the teacher to perform the interviews and interpret the results. If time is made available, along with guidance and support from the building administrator, the interview could become a powerful authentic assessment technique.

Modeling

The teacher educators in the Triad provided modeling sessions in the individual teachers' classrooms. The choice of the classroom in which to model as well as the person who is doing the modeling is important. One session of the modeling was also done by two of the teachers involved in the study, Dalene[1] and Joe. These two teachers were asked to model the conceptual change teaching strategies. Initially, many of the teachers believed that they would witness a conceptual change in the students within the time span of one class session. Later, after practicing in their own classroom and discussing this in class, the teachers realized that making a conceptual change in students was very difficult and would take many varied experiences. In addition, they began to realize that the conceptual change strategy did not have to be practiced in its entirety within one class session. The modeling sessions provided the experiences the teachers needed to discuss and formulate their understanding regarding the conceptual change model. The teachers, after witnessing the conceptual change strategy, were very excited and anxious to begin to use the model in their own classrooms.

One of the most significant results of the modeling sessions proved to be the understanding the teachers gained regarding the effects of the conceptual change teaching strategy on their "at risk" students. The teachers were amazed at the students' (whom they had determined to be learning disabled or low functioning) accuracy of predictions and understanding when compared to their "better" students.

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[1] Teachers' names have been changed to provide for anonymity

They termed these better students "book smart students" and observed that these students did not have the experiential knowledge structures necessary to make accurate and valid predictions. They described this type of student as a high functioning student that can memorize well. The teachers observed through the modeling sessions how the "low functioning" students were much more successful in the accuracy of their predictions, and commented that the use of this model could only increase the self-esteem of this type of student. Many of the teachers described the best attribute of the model as one that meets the different learning styles of each individual student.

Triad's Effect on Children's Attitudes

The teachers believed that the attitudes of children toward science in their classrooms had made significant improvement. The teachers, as a whole, felt that the students had changed in that they "...cooperated better, made more accurate predictions, were more excited and curious, would think before speaking, gave better reasons [for their responses], and were more willing to share predictions (Lynn).

The data interpreting the changes in the attitudes of the children as perceived by the teachers were extensive. The teachers were amazed at the changes in student attitude regarding instruction in their classroom. One indicator of the changes in the attitude of the students was the extent that the work done in the classroom would continue on into the home environment of the student. Kristen wrote, "...they are more observant and anxious to do science or related activities. Lately, they want to do it at home. They want to share these with their family." All of the teachers involved in the study wrote and spoke about the positive changes in their students' attitudes as a result of these experiences. The teachers stated that their students were excited to do anything that had to do with science concepts.

The teachers described their students' activities proudly and many commented that they had become better risk-takers, especially when their thinking involved critical thinking or problem solving. The teachers believed the model provided excitement, wonder, and curiosity. Many seemed to feel that this change in attitude by itself was sufficient to continue using the model, whether or not the child learned at the conceptual level. Several teachers commented in the sessions that their two week topic turned into a massive project, just because the children were so curious and wanted to discover more.

Triad's Effect on Children's Knowledge?

The teachers felt a great responsibility for making sure that their students learn. Many of the concerns toward inquiry learning in science were, in effect, generated by their attempt to meet administrative and parental expectations about their students' progress in content. This progress was typically measured by traditional methods of assessment, including, but not limited to, norm-referenced and district-mandated criterion-referenced tests. The teachers were asked to assign grades to represent the students' understanding. However, when the teachers began to look more in depth into the nature of assessment and conceptual change, they first began to question the innovation (conceptual change strategy) and later, offered a more mature perspective and began to question their traditional testing practices and those of the district's. The teachers questioned the district's use of criterion-referenced tests in any of the disciplines, not just science. They began to view a major part of the curricular problems in their district as testing problems, and stressed the need for some sort of alternative assessment.

The teachers involved with the Triad inservice program had difficulty developing an assessment paradigm with individual meaning that strayed far from the traditional assessment model which typically uses grades and percentages. Instead, they were working through the evolution of their ideas regarding the assessment of the children's knowledge. The teachers thought it was important to provide learning experiences in many different ways. The most important part of what they had learned as a result of this inservice model was to take into account the student's prior knowledge. Kristen stated, understanding "...what these kids know before I teach them is important to know and provide for in my lessons."

In effect, the teachers began to see the relationship between prior knowledge and the learning that could take place at the conceptual level. When learning was discussed and evaluated within the paradigm created by the Triad Inservice Model, the teachers had little trouble justifying the results. The teachers also described the learning that was taking place with the use of the conceptual change model as, learning that was lasting, and definitely not trivial.

Building Collegial Relationships

The teachers described increased collegial relationships fostered through the Triad Inservice Model. In addition, the teachers spoke of a higher level of expertise established because of these enhanced

relationships. Sharon stated, "Sharing with another colleague I view to be a positive experience. By sharing, planning, [discussing] ideas, classroom experiences and assessment ideas, I feel I grow and am more challenged as a teacher."

The attempt to establish collegial relationships by the teacher educators seemed to at least provide a medium to help foster in the teachers a development or renewal of friendships. It began to open the classroom doors to others not involved in the inservice program. Sue had mentioned that she had been afraid to step into another classroom to find out what was going on. Now she walks in, observes, or jumps right in helping the students with the lesson. The teachers were proud of their teaching and actually leaped at the opportunity to demonstrate their abilities to others. They had lost their fear of criticism, instead they began to welcome any helpful suggestions. The increase in in-school planning and communication was apparent. Many of the teachers spoke of others in their school not involved in the inservice program that were wondering what was going on in their classrooms--what was all the excitement?

An administrator summed up the formation of collegial relationships as a result of the Triad Inservice Model in this manner. He stated that we now have twenty to thirty teachers who are not afraid to open up their classroom doors to criticism from others. Before this was not the case.

Role of the Administrator

The teachers did see great value in the participation of the administrators. Some suggested that the inclusion of the principal made their team complete. Through the principal's active participation in the inservice program, the teachers did gain a little more respect for the principal's role in their school. The inclusion of the principal in this inservice model proved to be one of concern for the teachers. The principals had verbally committed to attendance at each inservice session, and at first were present and active during the beginning sessions. For much of the study, though, the principals "took turns" in attending. The teachers all spoke highly of the administrators involved in the project. Many times principals have two distinct duties to fulfill. One, they must be the instructional leaders in their school and, two, they must also evaluate the performance of individual teachers. The teachers' descriptions of the relationships between the teachers and the administrators did not deviate significantly from these initial duties that seems to separate the principal and the teacher. John found that the relationships

established during the inservice sessions would "help during evaluation time," a good indicator that the boundaries between teacher and administrator had not been broken down. Still, while most of the teachers described the need for increased collegial relationships with administrators, few could or would venture beyond this barrier and its respective hierarchical structure.

The participation of the principals in this inservice project was described as important by the majority of the teachers. They discussed the need for enhanced communication between teachers and administrators and that the structure of the Triad Inservice Model provided for this need. Several teachers requested an increase in the principal's participation in the inservice model by suggesting it be expanded to also include teaching and learning episodes in the classrooms. They explained that by requiring the principals to participate to the same degree as the teachers would help the administrator to better understand the total experiences provided through the Triad Inservice Model.

The two teachers who were not adequately represented by their building principal were somewhat disgusted and angry. In contrast to teachers whose principals made an effort to participate, Lynn, who was not represented by her building principal, spoke of the importance of principal participation even though it did not have any individual or personal meaning to her. She stated:

> It was nice to have some of the administrators there. They interacted with their staff and seemed to enjoy the experiences. At least they knew what their staff was doing and showed some interest. It seemed like they were more supportive of the changes we were trying to put into effect. It seemed like our curriculum director was involved at first, but perhaps lost some enthusiasm at the end. He did support the project however.

John seemed to sum up the teachers' overall views of the participation of the administrators with the following statement: "Anytime we can involve administrators in what's happening in the classroom is a plus for education."

To maximize the effect of the administrator in this model, the principal should be encouraged to participate at the same level as the teachers. Thus, the sharing, discussions, and problems related to teacher and school change are each encountered with the same level of understanding and experience.

Teacher Reflections: Post-Inservice

In April of 1993, approximately one year following the conclusion of the Triad Inservice Model, I interviewed several teacher inservice members. Data were collected regarding the extent the innovations

of the Triad Inservice Model were continued. When asked if their teaching had returned to "status quo" or to what it had been prior to the inservice program, the teachers responded that many things had changed as a result of their involvement in the Triad Model. The most prominent change was their increased understanding of the teaching and learning process. Their diminished use of some of the components of the Triad Inservice project was described simply as a lack of external motivation. In other words, the inservice project, university credit, and course structure seemed to provide the motivation needed to continue with the project. The general details from the interview findings and sustainability issues follow:

Peer Coaching: The teachers described peer coaching as a useful and quite helpful strategy to observe and create change. However, without the continued push of either the resource persons or the administration, most of the peer coaching strategies were not being implemented.

Conceptual Change Model: The teachers' use of the model continued in as many of the subject disciplines and activities as they could. Though not followed to the letter, the model with its prediction-based format was still deemed important.

Interviewing: Few of the teachers said they continued to interview their students in pre or post evaluative situations. The most common reason for not doing more interviews was the amount of time to interview, analyze, and interpret data gathered through the interview. Time was not provided for these procedures in the traditional structure of their school.

Sharing/Discussion: Little opportunity for sharing instructional strategies was provided. Consequently, sharing and discussion did not occur on any large scale. The teachers described an increase in the sharing of ideas with specific others involved in the inservice project.

Teacher as researcher: Little teacher research continued in the classroom, at least at the formal level. Again, they mentioned the lack of time provided in the school day to accomplish teacher research, collecting data, and analyzing and interpreting data. However, the teachers did suggest that informally, there was an increased awareness of the children's thoughts, ideas, and learning that was not present in its entirety prior to the inservice sessions. These informal methods of evaluating or assessing learning continued in spite of the lack of reflective time provided for the teacher.

Recommendations for Improvement

These data suggest a change in the time sequencing of the inservice sessions. More time is required to work with teachers and facilitate their growth. One effective time line might be to plan a three year sequence of events. In the first year, teachers might become more aware of the conceptual change model and begin to develop an understanding of the model. Early in the second year, inservice sessions might continue for those teachers to extensively begin using and studying the conceptual change model in their classroom. This would become a year of further understanding and commitment toward evaluating the teaching model's effectiveness in the teacher's classroom. The third year could be called the year of implementation. The teachers would begin to write additional units of instruction using the conceptual change model as one of their teaching strategies and begin to make curricular decisions regarding its use. Several of the teachers involved from the beginning of the project should begin to plan the sessions and begin taking over the inservice sessions.

To accomplish an increase in the collegial relationships among the teachers and the administrators, the principals should be more involved at the classroom level. They should prepare lessons and participate in the same teaching and learning strategies as the teachers. Some effort might be made through the inservice program to represent the principal as a facilitator for helping the teacher. This could be accomplished by removing the administrators from their offices and placing them actively in the classroom.

More time should be spent in sessions developing expertise through teacher practice in the interview process. With practice, these teachers would have felt more comfortable interviewing children to gather data, interpreting the data, and prescribing strategies for conceptual change in their children. In addition, with an increase in the skills of interviewing, the teachers might be more likely to carry their own research beyond their classroom walls. If teachers are to become researchers and do action research in their classrooms, it might require a broader experiential knowledge base of the research process. Again, with more time provided in the sequencing of the Triad Inservice Model, the teachers could gain the experiences that they need to become good researchers.

The continuance of the Triad Inservice Model seems to be contingent upon the encouragement and motivation provided by the facilitators of the project. It is suggested that teachers and principals be

identified and encouraged to continue the project within their own schools. Teacher inservice credit, state department of education grants, and/or district monies are required to perpetuate the innovations identified by the Triad Inservice Model.

More practice with peer coaching techniques would help to alleviate some of the problems associated with its use during the inservice sessions. It might have been of value to have assigned a specific task for the teachers to begin their coaching experiences. Also, the daily school time constraints of the teachers involved required that administrators line up substitutes for teachers during the process of peer coaching. If these teachers were released an additional planning hour during the day to reflect, pre or post-conference on peer coaching, manipulate data from their research, and plan experiences for their students, the Triad Inservice Model would have been even more successful.

Conclusion

The findings discussed above can be viewed within the larger context of traditional teacher inservice and teacher inservice. As such, they may be considered representative of the range of practices in which professionals attempting to implement a valid teacher inservice program might engage. The Triad Inservice Model is, indeed, a complex combination of theoretical, pedagogical, and social organizational frameworks. If teachers do not understand the various components of the Triad Inservice Model to the point where implementation and application in the classroom becomes innate, the changes in the teaching and learning in the classroom will be superficial.

These findings highlight areas of concern that teachers, administrators, researchers, and staff development personnel must be aware of as they work with the model and foster the application of its components. The teachers involved in this study drew on previous experience and knowledge to help them implement the parts of the inservice model. Their teaching styles, philosophical beliefs, and methods, for example, were deeply rooted in their years of experience. This background formed their basis for preparing students in specific content areas. The Triad Model, with its inquiry approach to teacher inservice seemed to contribute to their ease toward exploration of peer coaching, the conceptual change teaching model, interviewing children, and a willingness to share with others.

When considered in light of the original research questions, the teachers begin to provide points of interest. These case studies provide insight into the range of teacher practices used to implement the components of the Triad Inservice Model. The findings, together with the knowledge of an extensive body of the literature in teacher inservice programs, suggest certain generalities about teacher inservice as practiced in this study. Consequently, this study can furnish insight for teacher educators, researchers, and others concerned with providing an effective model for teacher instruction. The ethnographic data presented in this study may provide examples of the practices teachers use to understand and implement the components of the Triad Inservice Model. Thus, these findings can be the basis for inferences about what needs to be done to facilitate change in teachers to move from an accustomed style of instruction to the more, complex and collaborative style offered through the components of the inservice model, a model which reflects the ideas of constructivism, inquiry , and conceptual change.

As described, the Triad Inservice Model is simply not a prescriptive set of routines or procedures to establish and follow without deviation. Rather, the components of the Triad Inservice Model, as do the participants, begin to evolve with time, effort, and dedication.

When applied with an inquiry-oriented framework, the Triad Inservice Model can provide the basis for more positive attitudes toward and more confidence in the teaching of . The underlying theoretical, pedagogical, and social organizational frameworks of this model, together with its components of peer coaching, the conceptual change teaching strategy, teacher as researcher, interviewing, and modeling reflect more than just a strategy. They reflect a philosophy--a way of looking at the world, at the way children learn, and the way teachers teach.

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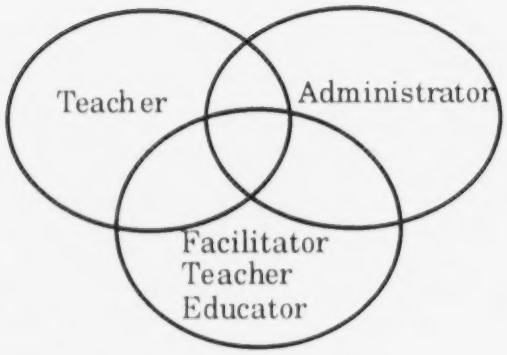
Figure 1



Appendix 1

Description of the Triad Model Inservice Sessions

Six meetings were held approximately once a month during a six month time span. Classes were held on Thursday and Friday evenings and/or Saturday mornings with approximately one meeting per month. In between sessions, the teachers were asked to use the various teaching and learning techniques established and practiced in the sessions in their classroom. Each meeting consisted of multiple sessions and had a specific agenda conforming to the course syllabus. What follows is a brief description of the procedures of each of the six meetings.

Meeting One

Session 1.1: October 1991

The first session began with a one hour overview of the program. In the first hour, teachers from every grade level and administrators from every building were invited to a presentation describing the partnership and subsequent meetings. Within this hour, discussion was held regarding curriculum, misconceptions in , and conceptual change. Continuing teachers were also asked to share their experiences from the previous year. At the conclusion of this overview, those who wanted to register for the course were asked to stay for the remainder of the session. Others, either not interested in this inservice program or those choosing not to participate, could leave. A total of twenty-three teachers remained after the introductory first hour of this session and subsequently registered with the Triad inservice project. Two principals from the in-town schools and one district office administrator elected to continue with the partnership.

During the remainder of the first session, the teachers were asked to identify a concept they were planning to teach within the next month. The teachers were asked to describe the goals for the learner with respect to the concept they had chosen. They were asked to respond to the following question: "What do you want to happen to the learner?" After establishing their goals for the learner, the teachers were asked to describe the difficulties they might have teaching the concept and the difficulties the students might have in learning the concept. Discussion was held on the importance of teacher reflection on the teaching and learning process. Journals were used for teacher reflection on the effectiveness of their teaching and its subsequent impact on the learning process within their classrooms. The teachers

were also asked to reflect on topics designed and prescribed by the course instructors.

Between session one and session two, the teacher educators sent concept-specific misconception research to the teachers. The teachers were asked to read this misconception research and prepare some sample interview questions to share with their group during the next session. In addition, they were asked to bring textbooks and other written materials to the next session they would use to develop their own specific concept at their grade level.

Meeting Two

Meeting two consisted of three separate sessions on a Thursday, Friday, and Saturday. Each session was two to three hours long.

Session 2.1

The participants, having returned with a set of sample interview questions for students, discussed these questions within their grade level group and later with the whole group. A videotape, prepared by the author, was shown regarding interview techniques in specific concepts. The teachers discussed the video and practiced interviewing with other teachers, the university personnel and administrators present in this session. Teachers were asked to interview a random sample of five of their students during the school day and individually share the results of their interviews with their group during the evening session of November 1, the following day.

Session 2.2

During the regular school day, the teachers involved in this study interviewed children in their class concerning their students' understanding of a particular concept. During the evening session, the teacher educators asked the teachers to share their results, first in small groups and then with the entire group. The groups then tabulated and interpreted the results of their interviews. The teacher educators asked the teachers to share information with the entire class based upon this question: "What have we learned?" The teachers shared this information and discussed problems they had in conducting the interviews.

The teacher educators asked the teachers to look at the way their concept was presented in textbooks and other written materials. Several textbooks from various publishers were provided for teacher evaluation. The teachers were asked to determine the extent the written materials took into account the

ideas of the children, then determine the appropriateness of the materials based on what they had learned through interviews with their students.

Session 2.3

The teacher educators provided the conceptual change teaching model and asked the teachers to try the model in their classrooms. An activity was used to model this teaching strategy. A presentation of the theory and subsequent discussion was held regarding peer coaching. The teachers were asked to peer coach with others between meetings, as well as write in their journals on specified topics.

Meeting Three

The major purpose of this meeting was to continue to provide experiences with the Conceptual Change Model (Smith, 1991). In addition, the teacher educators of this inservice program used concepts determined by the classroom teacher and modeled this teaching strategy with the teacher's students. Other teachers and administrators observed the reactions of the students and recorded those reactions in their journals.

Session 3.1

Activities were presented by the teacher educators using the Conceptual Change Model with the teachers. These activities were the same ones that were to be used the following day in the classrooms of the teachers. This allowed the teachers to experience the same learning situations that their students would experience the next day. Discussion was held regarding the model and the activities with grade level teams and then the whole group.

Session 3.2

During the school day, the teacher educators modeled activities in using the Conceptual Change Model with the students of the teachers involved in this study. The teachers took notes in their journal. That evening, the session resumed and the teachers shared their reactions to the modeling through discussion. Teams of teachers got together and planned teaching strategies, utilizing the Conceptual Change Model, for the concept they had chosen.

Between this meeting and the next, the teachers were to teach the concept and interview their students to determine whether or not a conceptual change had taken place. The teachers were to evaluate their instruction, their students understanding, and the appropriateness or inappropriateness of the written

curriculum.

Meeting Four

Session 4.1

The teachers were asked to share the results of the teaching of their concept and their post interviews with their students. They were asked to share what worked and what didn't work regarding their teaching strategy. In addition, problems and concerns regarding the time requirements of this course were discussed.

Session 4.2

The teachers were asked to discuss the value and merit of their experiences with peer coaching. The strengths and weaknesses of peer coaching were discussed. Planning began for the instruction of a second concept. The teachers were asked to identify the concept to be taught, summarize their content understanding of the concept, describe any questions they might have in regards to the teaching of the concept, and pose interview questions for their students. The results of these activities were shared with the entire group.

Between sessions, concept specific misconception research was sent to the teachers to evaluate and incorporate into their instructional strategies. In addition, the teachers were to interview their students, teach the concept, interview their students, evaluate the effectiveness of their teaching strategies, and make prescriptions related to the appropriateness of the curriculum.

Meeting Five

Session 5.1

The teacher educators asked the teachers to share any experiences they had while interviewing or teaching their concept. The teachers were asked to discuss the following questions:

1. What was your concept?
2. What changes did you want to happen to the learner?
3. What did your pre interviews suggest regarding your students' understanding?
4. How did you incorporate your students' ideas?
5. From the results of your post interviews, how effective were your teaching strategies? What worked? What didn't work?

6. Is this concept appropriate for your grade level? Explain.

7. If you were to do it over again, what changes would you make?

The teachers were asked to discuss and brainstorm how the conceptual change model, interviewing, peer coaching, and teacher research could be used in other curricular areas. Following the discussion, the teachers were asked to plan a lesson using these models in another discipline.

Session 5.2:

The teachers were given the following scenario:

> You have tenure in the school district of --?--. On your first day (after a summer in which the curriculum committee wrote a new curriculum), the principal hands you a list of new objectives to teach your students. How do you perceive your role as a teacher researcher regarding each of the components of the curriculum?

Discussion was held regarding this scenario.

Meeting Six

Session 6.1

The purpose of this meeting was to look at the curriculum of the school district, make suggestions for revision, and design a curriculum. In order to create the ideal curriculum, the teachers were asked to identify what changes need to take place in the school, the instruction, the administration. Teachers were asked to respond to the question, "As a result of these experiences, what are the implications for curriculum evaluation and revision?" Discussion was held centered around the questions: "Where do we go from here?" "What have we learned?"

The teacher educators worked with the development of an interdisciplinary unit based around the theme of kites. The teachers, working in grade level teams, compiled a set of interdisciplinary activities and teaching strategies centered around the kite theme. The teachers were given additional time to write in their journals about the changes they had observed while participating in this Triad inservice program.